Name: Date: Period:

**Energy Flows & Cycles**

**Food chain** –series of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ where one organism eats another and

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy

**Energy pyramid** – shows amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that moves from one

feeding \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to another

**Food Web**  -- flow of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ through an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*\*\*\*\***ARROW POINTS TO WHERE** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

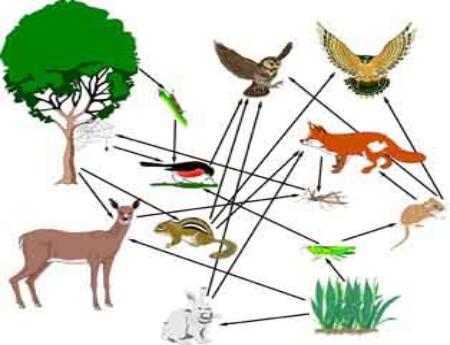
* **Producers** – make their own \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Consumers** – obtains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by feeding on other

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + **Herbivores**  -- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ eaters
  + **Carnivores** -- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ eaters
  + **Omnivores**  -- eat both \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + **Scavengers** – consumers of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Decomposers** – break down \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and dead \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to

return the materials to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Primary consumers –** eat \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Secondary consumers –** eat \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ consumers

**Tertiary consumers –** eat \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ consumers

**Water cycle** – continuous \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by which water moves from Earth’s

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and back

* **Evaporation** – process by which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ water molecules

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy and change to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* **Condensation** – process by which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ changes to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

( vapor to water drops)

* **Precipitation** – heavy \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (rain, snow, sleet, hail) fall back to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Collection** – process by which water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in oceans or

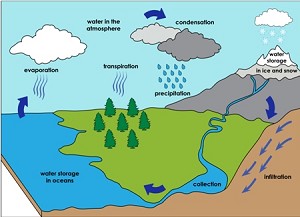
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* **Transpiration** – process by which water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ escapes from

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and it enters the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* **Infiltration** – process where \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ water soaks into the

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ through the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and underlying \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Carbon and Oxygen Cycles**

* 3 major processes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + **photosynthesis** – plants take in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from the sun, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ thus releasing

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + **respiration** – animals take in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

thus releasing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + **combustion** – process of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; release of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

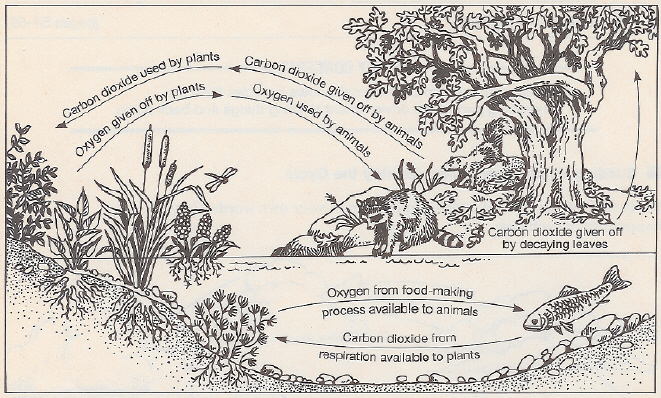
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1 minor process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + **decomposition** – when \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ matter breaks down

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into all the simple \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ they

are made of and these elements are then returned to the

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Nitrogen Cycle**

* 4 processes in which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ moves from the air to the
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_, living things, and back into the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + **Nitrogen fixation** – changing \_\_\_\_\_\_\_\_\_\_\_\_ nitrogen into

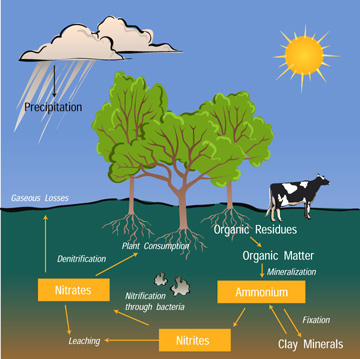
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ nitrogen (ammonia)

* + **Decay** – breakdown molecules in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and dead

organisms into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + **Nitrification** -- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ converted into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + **Denitrification** – removes nitrogen from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and

passes it through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



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**Energy Flows & Cycles KEY**

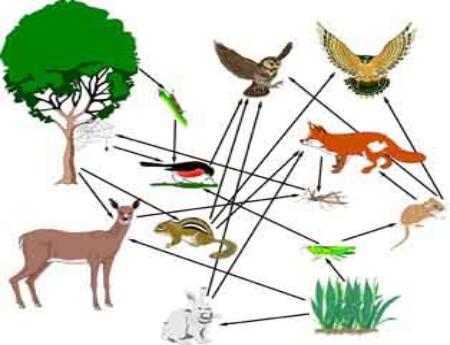
**Food chain** –series of events where one organism eats another and obtains energy

**Energy pyramid** – shows amount of energy that moves from one feeding level to another

**Food Web**  -- flow of energy through an ecosystem

\*\*\*\*\***ARROW POINTS TO WHERE** the energy goes

* **Producers** – make their own food; producers
* **Consumers** – obtains energy by feeding on other organisms
  + **Herbivores**  -- plant eaters
  + **Carnivores** -- meat eaters
  + **Omnivores**  -- eat both plants and meat
  + **Scavengers** – consumers that eat dead animals
* **Decomposers** – break down wastes and dead organisms to return the materials to the ecosystem; bacteria and mushrooms



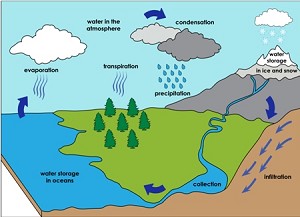
**Primary consumers –** eat **producers**

**Secondary consumers** – eat **primary** consumers

**Tertiary consumers** – eat **secondary** consumers

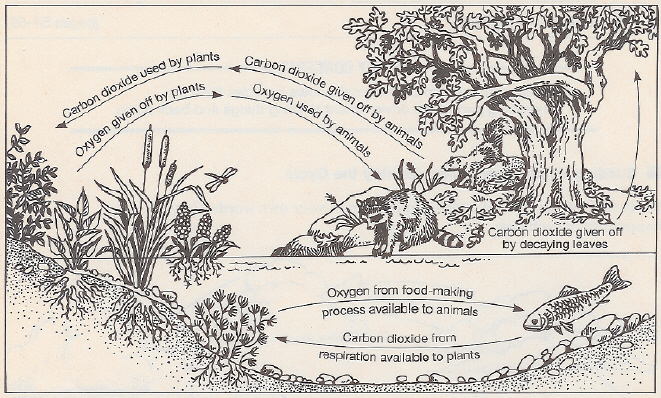
**Water cycle** – continuous process by which water moves from Earth’s surface to the atmosphere and back

* **Evaporation** – process by which liquid water molecules absorb energy and change to a gas
* **Condensation** – process by which gas changes to a liquid (vapor to water drops)
* **Precipitation** – heavy droplets (rain, snow, sleet, hail) fall back to Earth
* **Collection** – process by which water collects in oceans or ground
* **Transpiration** – process by which water vapor escapes from plants and it enters the atmosphere
* **Infiltration** – process where rain water soaks into the ground through the soil and underlying rocks



**Carbon and Oxygen Cycles**

* 3 major processes: photosynthesis, respiration, and combustion
  + **photosynthesis** – plants take in carbon dioxide, energy from the sun, and water thus releasing oxygen, sugar, and water vapor
  + **respiration** – animals take in sugars and oxygen thus releasing carbon dioxide, water, and energy
  + **combustion** – process of burning; release of carbon dioxide
* 1 minor process: decomposition
  + **decomposition** – when organic matter breaks down chemically into all the simple elements they are made of and these elements are then returned to the environment



**Nitrogen Cycle**

* 4 processes in which nitrogen moves from the air to the soil, living things, and back into the air
  + **Nitrogen fixation** – changing free nitrogen into usable nitrogen (ammonia)
  + **Decay** – breakdown molecules in excretions and dead organisms into ammonia
  + **Nitrification** -- ammonia converted into nitrates
  + **Denitrification** – removes nitrogen from atmosphere and passes it through ecosystems

